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A CASE OF A LARGE INGUINOSCROTAL BLADDER HERNIA SECONDARY TO BENIGN PROSTATIC OBSTRUCTION

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Large bladder hernias protruding into the scrotum are rare, with 23 cases having been reported previously in Japan. We report a case of a patient with a bladder hernia secondary to benign prostatic obstruction who demonstrated a unique voiding procedure. The patient manually compressed his scrotum at micturition to facilitate bladder emptying. He underwent subcapsular prostatectomy, followed by inguinal hernia repair. Postoperatively, the voiding procedure and urinary flow returned to normal. We should pay attention to symptoms of bladder hernia in the follow-up of patients with bladder outlet obstruction.

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Key words : Bladder hernia, Benign prostatic obstruction, Surgery

INTRODUCTION

Involvement of the urinary bladder has been reported in 1% to 4% of all inguinal hernias¹⁾. Bladder hernia is clinically insignificant because the herniated portion of the bladder is small in most cases. When these small bladder hernias are found during inguinal hernia repair, they present no special problem in management if the bladder is recognized and not injured. In contrast, a large bladder hernia into the scrotum is rare, not only in Japan but also in other countries²⁾, and presents unique features in symptoms, diagnosis and management. We report a case of a large bladder hernia protruding into the scrotum that was successfully treated by open surgery.

CASE REPORT

A 77-year-old man with a long history of clinical benign prostatic obstruction (BPO) complained of scrotal swelling during bladder filling. He often manually compressed the scrotum in order to facilitate bladder emptying at micturition. On physical examination, marked right inguinal to hemiscrotal swelling was apparent in the upright position with abdominal straining. Contrast-enhanced computerized tomography (CT) revealed benign prostatic enlargement, displacing 88.5 ml in volume, and a bladder that was herniated into the right hemiscrotum through the right inguinal canal (Fig. 1). Subsequent voiding cystourethrography (VCUG) confirmed this finding, which indicated a bladder hernia (Fig. 2). The bladder almost completely protruded beyond the inguinal canal. During up-hill voiding, a conduit-like portion appeared between the scrotal portion and the neck of the herniated bladder. A large amount of residual urine remained in the herniated bladder. Uroflowmetry showed a decreased peak flow rate (8.2

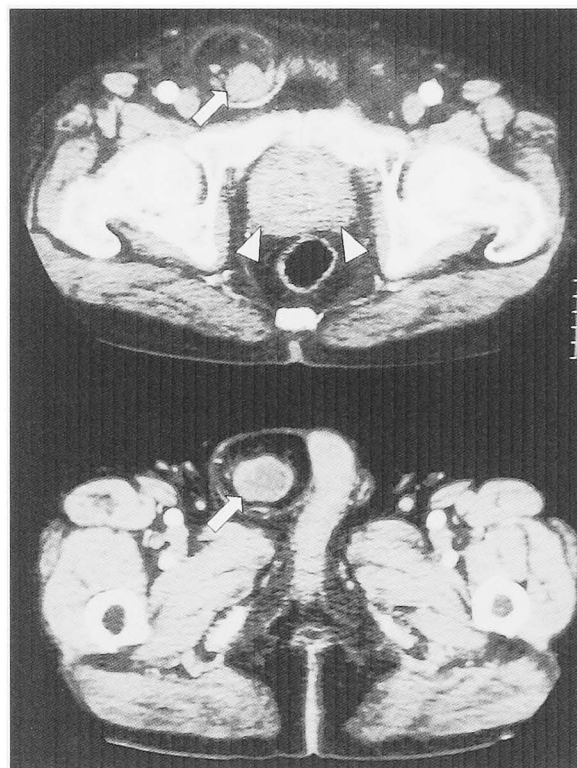


Fig. 1. Preoperative contrast-enhanced computerized tomography revealed benign prostatic enlargement (\triangle) and herniation of the bladder into the right hemiscrotum through the right inguinal canal (\Rightarrow).

ml/sec) (Fig. 3A).

The patient underwent subcapsular prostatectomy, followed by inguinal hernia repair. At the exploration, most of the bladder wall went through the internal inguinal ring in the manner of an indirect inguinal hernia, and it reached the lower recess of the scrotum (Fig. 4). The herniated bladder was dissected free from the scrotum, and placed in an orthotic position. The

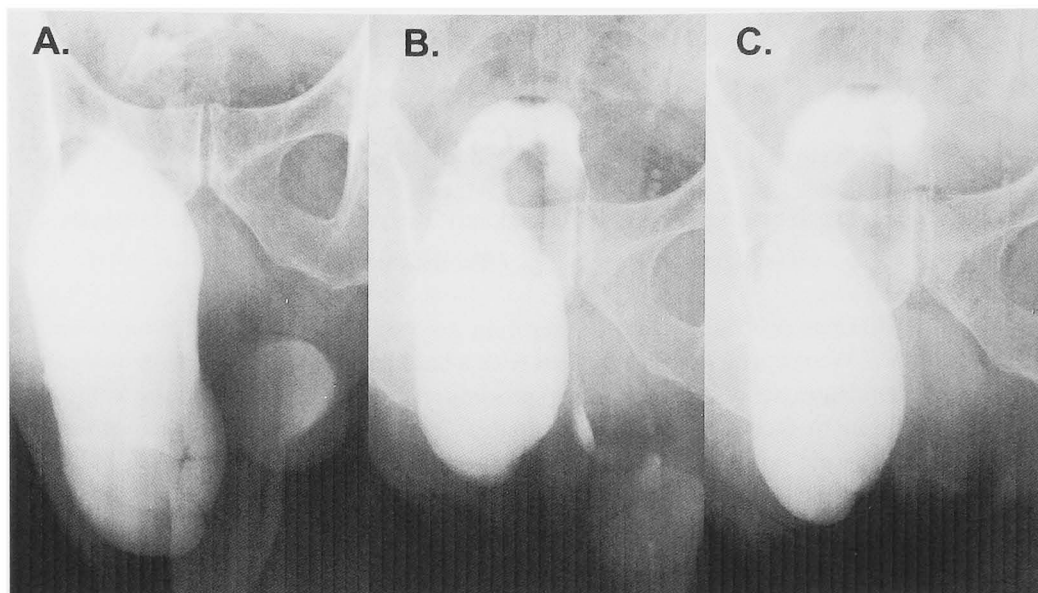


Fig. 2. Preoperative VCUG. A, before voiding: the bladder almost completely protruded beyond the inguinal canal. B, during voiding: a conduit-like portion appeared between the scrotal portion and the neck of the herniated bladder. C, after voiding: a large amount of residual urine remained in the herniated bladder.

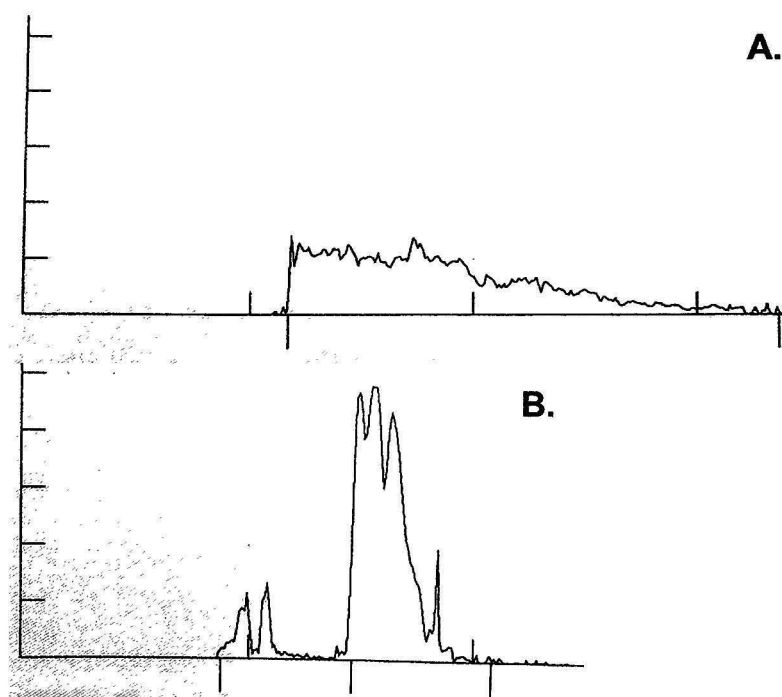


Fig. 3. A, Preoperative uroflowmetry. B, Postoperative uroflowmetry.

resected adenoma was 70.4 g in weight. Postoperative uroflowmetry showed marked improvement (peak flow rate: 24.5 ml/sec) (Fig. 3B). The bladder was demonstrated to have recovered its normal size and shape by postoperative VCUG (Fig. 5).

DISCUSSION

Bladder hernias have been described primarily in association with inguinal and femoral hernias. The reported incidence of bladder involvement in all groin hernias is 1% to 4%, and it increases to 10% in men

older than 50 years^{1,3)} However, a large bladder hernia into the scrotum is rare, not only in Japan but also in other countries²⁾ To our knowledge, our patient is the 24th case of a large bladder hernia into the scrotum in Japan⁴⁻⁷⁾

We reviewed 59 cases of bladder hernia reported previously in Japan, including our case (50 males and 9 females)⁴⁻¹⁰⁾ The mean age of the patients was 56 years old, and 42 of them were older than 50 years old. The cases comprised 32 inguinal bladder hernias, 24 inguinoscrotal bladder hernias, 2 femoral bladder

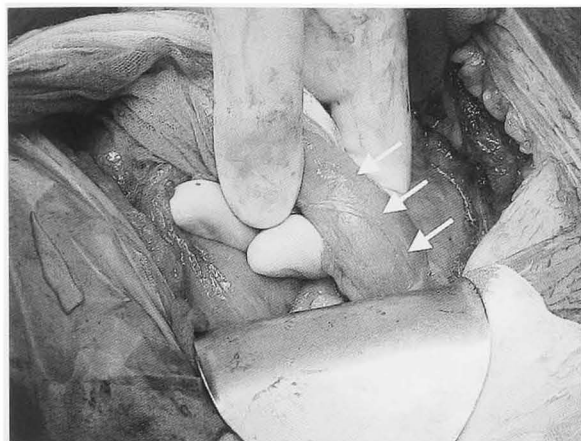


Fig. 4. An intraoperative photograph showed the right wall of the bladder (⇒) extending into the right inguinal canal.

hernias and 1 perineal bladder hernia. We summarized especially the cases of inguinal and inguinoscrotal bladder hernias among them as shown in Table 1.

Bladder outlet obstruction, obesity and loss of bladder tonus with weakness of the supporting structures, which may occur with advancing age, are thought to be associated with bladder hernia²⁾ Seven of the 24 patients with inguinoscrotal bladder hernia had bladder outlet obstruction, which was BPO, bladder neck contracture, or urethral stricture. In our case, long-term high pressure voiding due to BPO was thought to be a main causative factor for the large bladder hernia.

Bladder hernias are usually discovered during inguinal hernia repair rather than during medical or surgical treatment for BPO because most patients are asymptomatic. Twenty of the 24 patients with inguinoscrotal bladder hernia were diagnosed preoperatively. On the other hand, 12 of the 32

Table 1. Summary of the cases of inguinal and inguinoscrotal bladder hernias in the Japanese literature

| | Inguinal (n=32) | Inguinoscrotal (n=24) |
|--|--------------------|--------------------------|
| Symptom | | |
| tumor | 27 | 20 |
| difficulty in voiding | 8 | 10 |
| two-stage micturition | 5 | 11 |
| urinary retention | 3 | 1 |
| frequency | 5 | 9 |
| gross hematuria | 1 | 2 |
| other | 3 | 4 |
| unknown | 1 | 1 |
| Occasion of diagnosis | | |
| preoperative | 19 | 20 |
| intraoperative | 4 | 1 |
| intraoperative injury | 8 | 2 |
| unknown | 1 | 1 |
| Complication | | |
| BOO | 13 | 7 |
| calculi in the herniated bladder | 3 | 1 |
| tumor in the herniated bladder | 1 | 2 |
| Method of treatment | | |
| reduction of bladder and hernia repair | 23 | 12 |
| resection of bladder and hernia repair | 3 | 8 |
| unknown | 4 | 3 |
| no treatment | 2 | 1 |

BOO : bladder outlet obstruction.

patients with inguinal bladder hernia were diagnosed intraoperatively. In addition, eight of them received

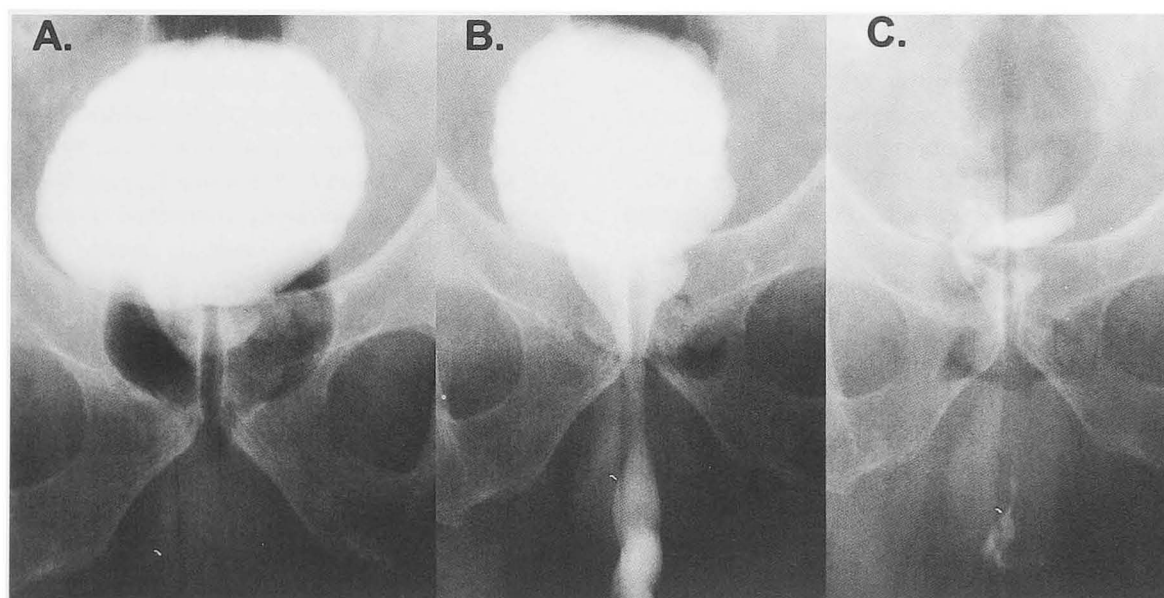


Fig. 5. Postoperative VCUG. A, before voiding: the normally shaped bladder was located in an orthotic position. B, during voiding: the reduced bladder contracted normally. C, after voiding: little residual urine remained in the bladder.

bladder injury due to the surgical manipulation. A predominant symptom of bladder hernia is 2-stage micturition¹⁾. The second stage of micturition is frequently facilitated by manual compression of the bladder. Eleven of the 24 patients with inguinoscrotal bladder hernia complained of the 2-stage micturition. In contrast, only five of the 32 patients with inguinal bladder hernia complained of the symptom. This suggests that 2-stage micturition might occur more frequently in patients with inguinoscrotal bladder hernia than those with inguinal bladder hernia. Our patient also manually compressed the scrotum in order to facilitate bladder emptying at micturition. The reason patients with bladder hernia frequently need manual compression is not well understood. Kumon et al. reported that a high detrusor opening pressure on preoperative urodynamic findings was primarily ascribable to a full isovolumetric contraction in patients with inguinal bladder hernia¹¹⁾. They concluded that the contraction was required to pull the bladder hernia back against abdominal pressure during the pre-urination phase. The detrusor contraction would not be sufficient to pull a bladder hernia back if the herniated portion of the bladder was as large as in our case. Therefore, patients might compensate for contraction of the bladder by manual compression of the scrotum.

CT and VCUG are important for the diagnosis of bladder hernia. Once the diagnosis is made, any existing bladder outlet obstruction should be relieved. In addition, resection or reduction of the herniated bladder should be performed in conjunction with some type of repair of the inguinal floor. Resection of the bladder is indicated for tumor or strangulation with necrosis; the size of the herniated bladder alone is not an indication for resection^{1,12)}. There are several reports of large bladder hernias in which normal function was recovered after reduction^{1,4,5)}. Our experience also suggests that it was adequate to reduce even a massive bladder hernia. To repair the inguinal floor, we narrowed the internal ring by patching the resected pyramidal muscle via an extraperitoneal approach.

Sometimes BPO causes bladder hernia, which is often asymptomatic. However, a large bladder hernia like our case presents unique symptoms, and we should pay attention to such symptoms in follow-up of patients with BPO.

CONCLUSION

We experienced a case of a large bladder hernia protruding into the scrotum secondary to benign prostatic obstruction, which was successfully treated by open surgery. CT and VCUG were useful for preoperative diagnosis of the bladder hernia. We should pay attention to symptoms of bladder hernias in follow-up of patients with BPO.

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和文抄録

前立腺肥大症に合併した巨大膀胱ヘルニアの 1 例

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日立総合病院泌尿器科

膀胱ヘルニアは比較的よく見られる疾患ではあるが、陰嚢まで達する巨大な膀胱ヘルニアは稀である。今回、われわれは前立腺肥大症に合併した巨大膀胱ヘルニアの 1 例を経験したので、若干の文献的考察を加え報告する。症例は 77 歳、男性。前立腺肥大症にて通

院中、右陰嚢腫大を自覚した。精査の結果、膀胱ヘルニアと診断され、恥骨上式被膜下前立腺摘除術・ヘルニア根治術を施行された。術後、排尿状態は改善し、膀胱造影上も膀胱の位置・形状ともに正常となった。
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